

May 13 to May 19, 2012 (Week 20)

Overall Influenza Summary

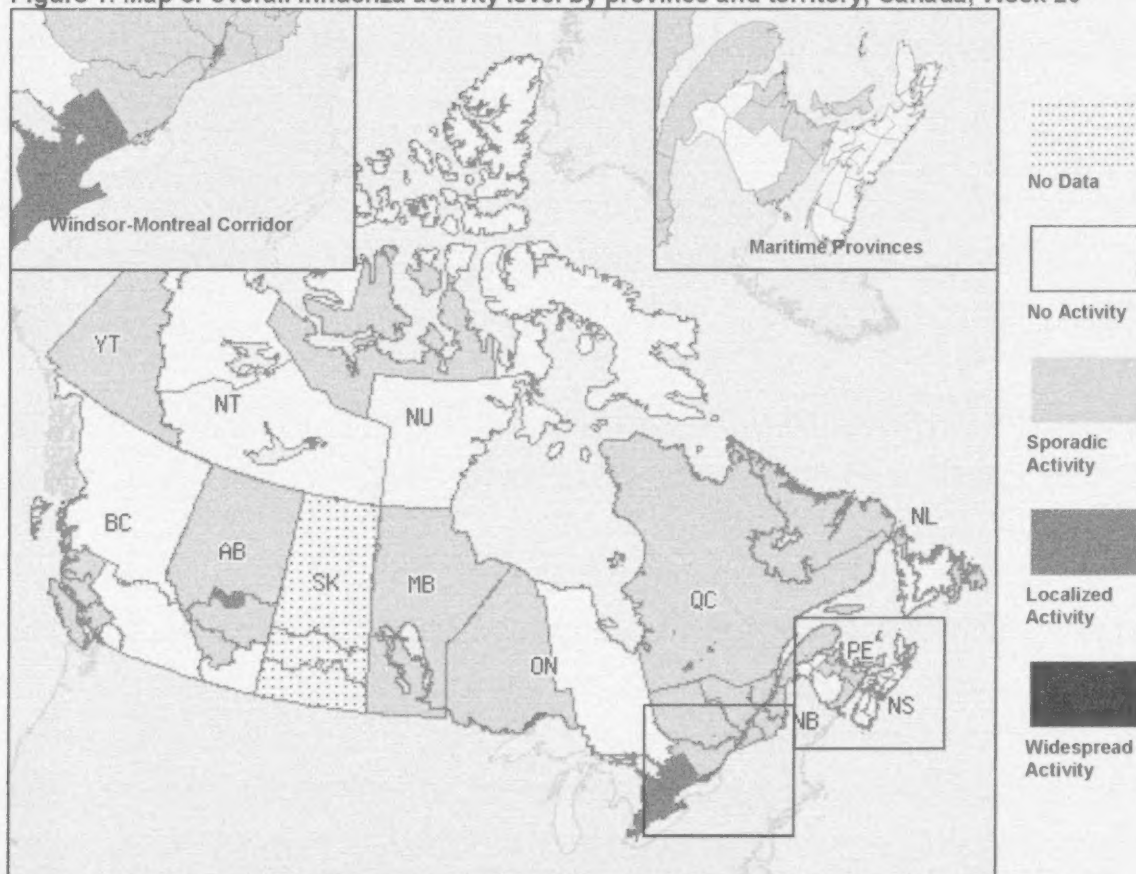
- Overall, influenza activity in Canada continues to decline; most indicators of influenza activity have declined compared to the previous week. Reports of localized influenza activity were still reported in regions in Ontario, Quebec and Alberta.
- Five outbreaks of influenza or ILI were reported this week (2 in LTCFs, 1 in a hospital and 2 others).
- In week 20, 181 laboratory detections of influenza were reported of which 46% were for influenza A viruses (44.6% - A(H3); 15.7% - A(H1N1)pdm09; 39.8% - untyped) and 54% for influenza B viruses.
- Thirty-three influenza-associated hospitalizations were reported this week (11 paediatric through IMPACT surveillance and 22 adult through aggregate surveillance)
- The ILI consultation rate increased compared to the previous week and is within expected levels for this time of year.

NOTE: This is the final weekly report for the 2011-12 influenza season. Bi-weekly reports will commence on June 8th (for weeks 21 and 22). However, laboratory detections reported through the RVDSS and influenza activity level maps will be updated weekly on the FluWatch website.

Influenza Activity (geographic spread) and Outbreaks

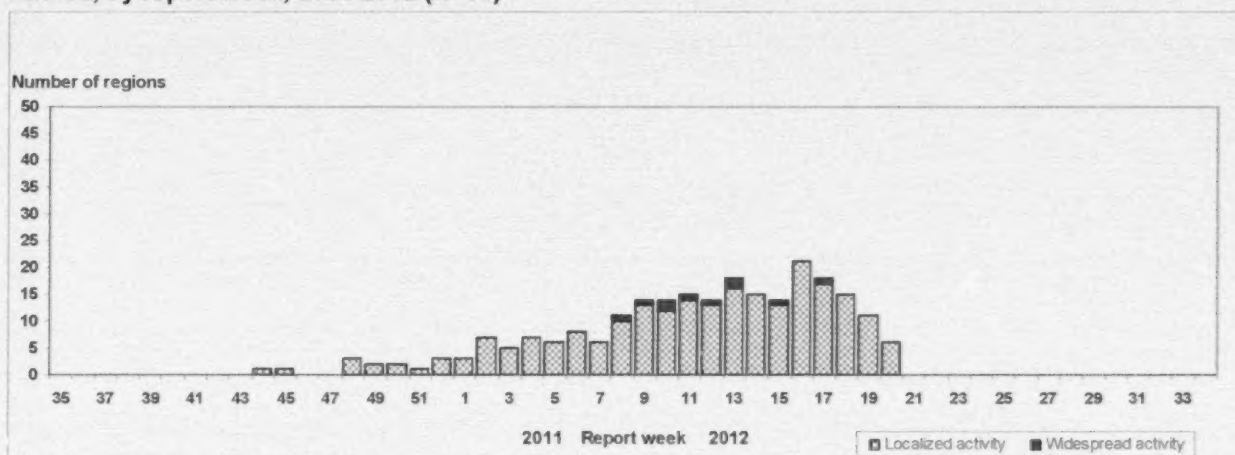
In week 20, 6 surveillance regions (within QC, ON & AB) reported localized activity and 23 regions (within all provinces and territories except in NS, SK & NT) reported sporadic influenza activity (see Figure 1). Note that Saskatchewan's community and sentinel physician ILI surveillance program is now in hiatus until mid Fall, 2012; however respiratory virus surveillance through the laboratories will continue year-round. Five outbreaks of influenza or ILI were reported this week: 2 in long-term care facilities (in ON & in AB), 1 in a hospital (in QC) and 2 others (in ON) (Figure 3).

Figure 1. Map of overall Influenza activity level by province and territory, Canada, Week 20



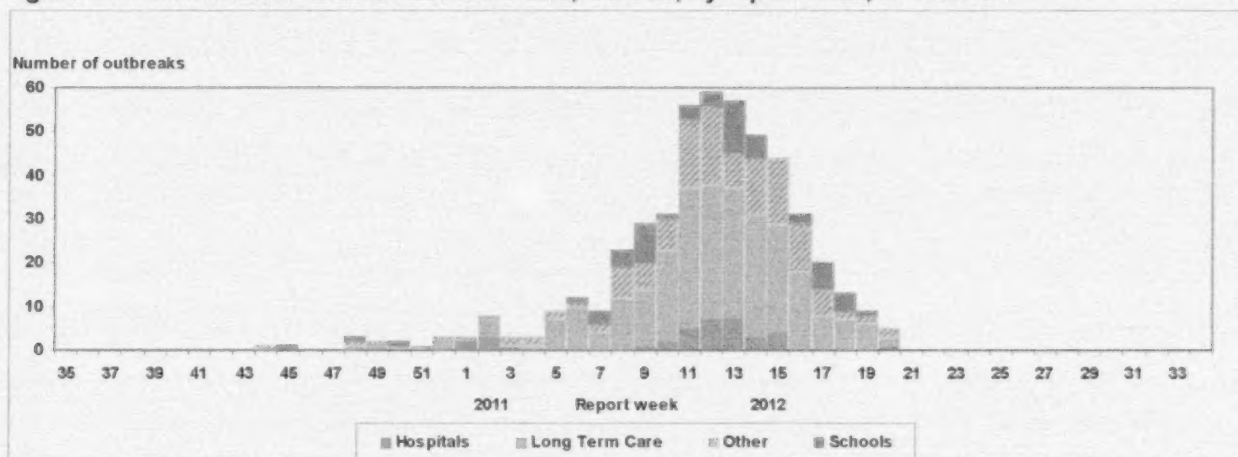
Note: Influenza activity levels, as represented on this map, are assigned and reported by Provincial and Territorial Ministries of Health, based on laboratory confirmations, sentinel ILI rates (see graphs and tables) and reported outbreaks. Please refer to detailed definitions on the last page. For areas where no data is reported, late reports from these provinces and territories will appear on the FluWatch website.

Figure 2. Number of influenza surveillance regions† reporting widespread or localized influenza activity, Canada, by report week, 2011-2012 (N=56)



† sub-regions within the province or territory as defined by the provincial/territorial epidemiologist. Graph may change as late returns come in.

Figure 3. Overall number of influenza outbreaks, Canada, by report week, 2011-2012



Influenza and Other Respiratory Virus Detections

The proportion of positive influenza tests declined slightly this week and was 8.6% (181/2,100) in week 20 (Figure 4 & 5). The proportion of positive detections for influenza A viruses increased slightly and was 3.9% in week 20 while the percent positive for influenza B viruses declined and was 4.7%.

Cumulative to date of influenza virus detections by type/subtype is as follows: 46.9% influenza A (40.7% - A(H3); 18.9% - A(H1N1)pdm09; 40.3% - untyped) and 53.1% influenza B (Table 1).

Detailed information on age and type/subtype were received on 9,812 cases to date this season (Table 2). The proportions of cases by age group are as follows: 20.9% were < 5 years; 18.0% were between 5-19 years; 22.0% were between 20-44 years; 15.4% were between 45-64 years of age; 23.5% were ≥ 65 years; and 0.2% with age unknown. The largest proportion of influenza A cases were between 20-44 years of age (26%) and those ≥ 65 years of age (25%). The largest proportion of influenza B cases were in those under 20 years of age (46%) and those ≥ 65 years of age (23%).

The percentage positive for rhinovirus detections increased slightly compared to the previous week (14.6% in week 20) and has the highest percentage positive compared to the other respiratory viruses, including influenza. The percentage positive for the other respiratory viruses remained low and were similar to the previous week : RSV-4.8%; parainfluenza-2.4%; adenovirus-3.9%; hMPV-1.3%; and coronavirus-1.4% (Figure 5). For more details, see the weekly [Respiratory Virus Detections in Canada Report](#).

Table 1. Weekly & Cumulative numbers of positive influenza specimens by Provincial Laboratories, Canada, 2011-2012

Reporting provinces	May 13 to May 19, 2012						Cumulative (August 28, 2011 to May 19, 2012)					
	Influenza A					B	Influenza A					B
	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total
BC	20	0	16	4	0	7	585	0	471	97	17	119
AB	14	0	6	6	2	17	1327	0	1019	254	54	241
SK	6	0	0	0	6	2	515	1	319	47	148	79
MB	2	0	1	1	0	4	73	0	12	7	54	237
ON	2	0	0	0	2	8	929	0	243	489	197	2657
QC	19	0	2	1	16	48	1835	0	71	97	1667	2187
NB	4	0	1	1	2	9	101	0	32	34	35	331
NS	0	0	0	0	0	0	16	0	11	1	4	93
PE	0	0	0	0	0	1	3	0	2	1	0	51
NL	16	0	11	0	5	2	104	0	56	10	38	211
Canada	83	0	37	13	33	98	5488	1	2236	1037	2214	6206

*Unsubtyped: The specimen was typed as influenza A, but no test for subtyping was performed. Specimens from NT, YT, and NU are sent to reference laboratories in other provinces. Note: Weekly data is based on week of positive lab detection. Cumulative data includes updates to previous weeks; due to reporting delays, the sum of weekly report totals do not add up to cumulative totals.

Table 2. Weekly & Cumulative numbers of positive influenza specimens by age groups reported through case-based laboratory reporting, Canada, 2011-2012*

Age groups	Weekly (May 13 to May 19, 2012)					Cumulative (Aug. 28, 2011 to May 19, 2012)				
	Influenza A				B	Influenza A				B
	A Total	Pandemic H1N1	A/H3N2	A unsubtype	Total	A Total	Pandemic H1N1	A/H3N2	A unsubtype	Total
<5	23	10	6	7	17	994	230	347	417	1052
5-19	11	4	3	4	46	561	82	279	200	1201
20-44	30	8	14	8	19	1255	284	458	513	903
45-64	21	6	6	9	15	887	183	298	406	628
65+	34	2	20	12	10	1206	72	728	406	1104
Unknown	0	0	0	0		18	6	11	1	3
Total	119	30	49	40	107	4921	857	2121	1943	4891

*Please note that this table reflects the number of specimens for which demographic information was reported. These represent a subset of all positive influenza cases reported. Delays in the reporting of data may cause data to change retrospectively.

Figure 4. Influenza tests reported and percentage of tests positive, Canada, by report week, 2011-2012

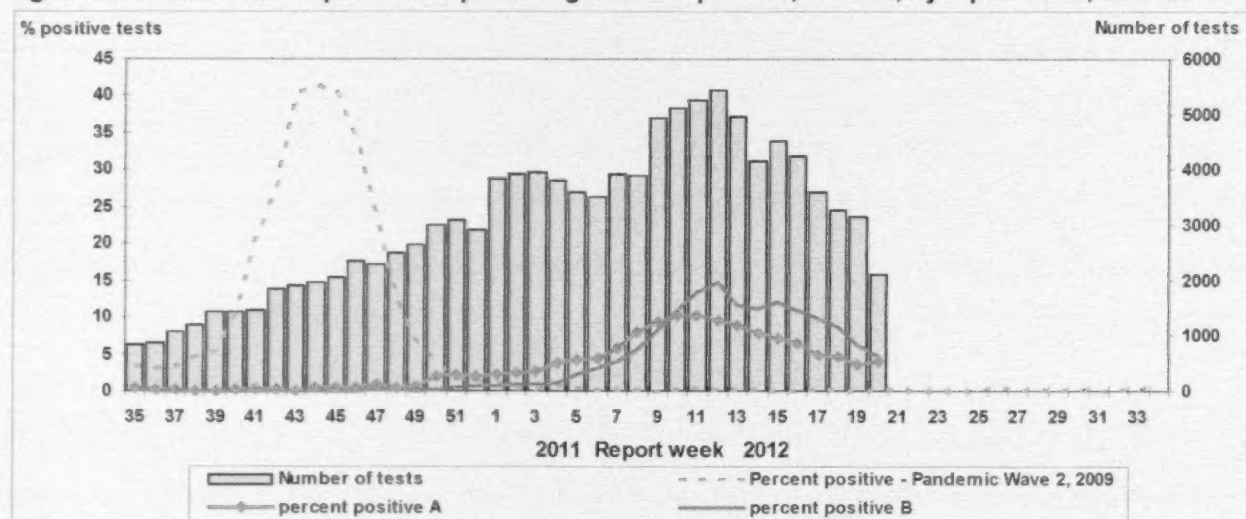
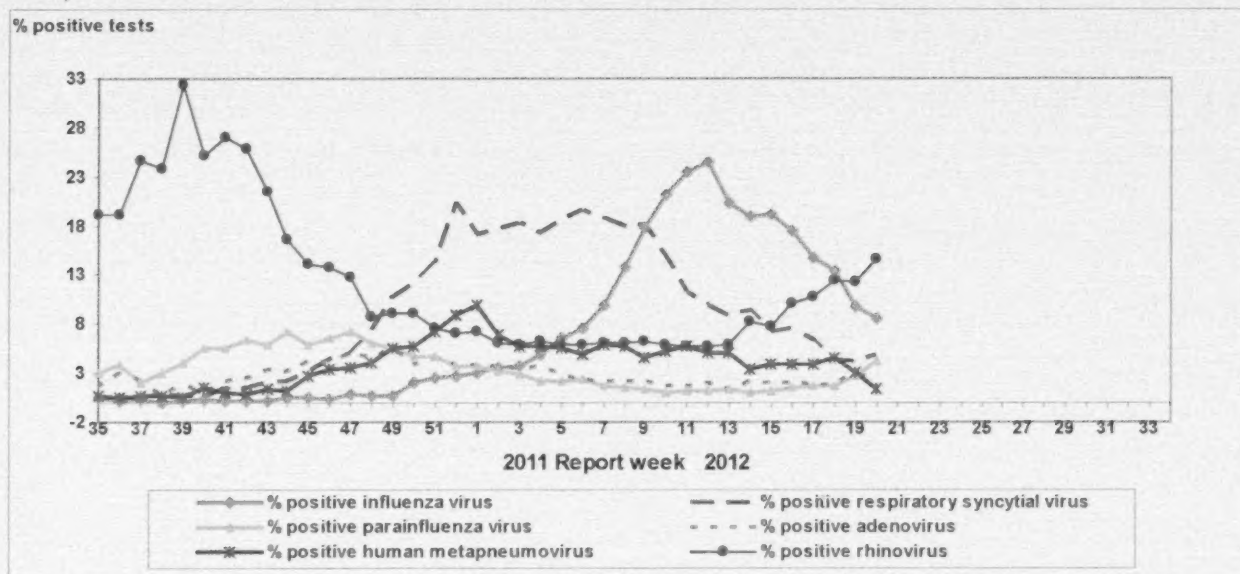


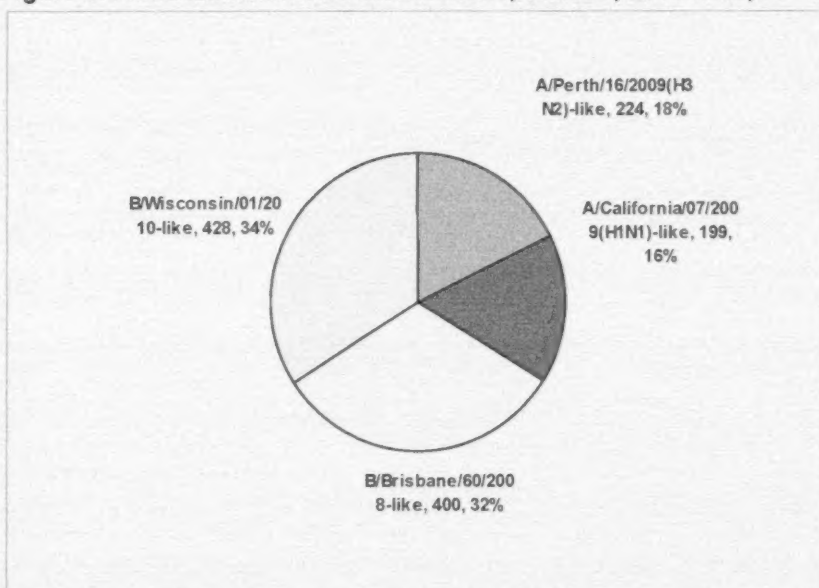
Figure 5. Percent positive influenza tests, compared to other respiratory viruses, Canada, by reporting week, 2011-2012



Influenza Strain Characterizations

Since the start of the season, the National Microbiology Laboratory (NML) has antigenically characterized 1,251 influenza viruses (224 A/H3N2, 199 A/H1N1 and 828 B). Of the 224 A/H3N2 viruses (from BC, AB, SK, MB, ON, QC, NB, NS & NT), 91.1% (204) were antigenically similar to A/Perth/16/2009 while 8.9% (20) viruses showed reduced titers with antiserum produced against A/Perth/16/2009. Of the 199 A/H1N1 viruses characterized (from BC, AB, SK, MB, ON, QC & NB), 97.5% (194) were antigenically similar to A/California/07/2009 and 2.5% (5) viruses tested showed reduced titer with antiserum produced against A/California/07/2009. Of the 828 influenza B viruses characterized, 48.3% (400) (from BC, AB, SK, MB, ON, QC, NB, NS & NL) were antigenically similar to the vaccine strain B/Brisbane/60/2008 (Victoria lineage); however 1 virus out of the 400 tested showed reduced titer with antiserum produced against B/Brisbane/60/2008. The remaining 51.7% (428) of the influenza B viruses (from BC, AB, SK, MB, ON, QC, NB, NS, NT & NU) are antigenically related to the reference virus B/Wisconsin/01/2010-like, which belongs to the Yamagata lineage. (Figure 6)

Figure 6. Influenza strain characterizations, Canada, 2011-2012, N = 1,251



Note: The recommended components for the 2011-2012 Northern Hemisphere influenza vaccine include: A/Perth/16/2009 (H3N2), A/California/7/2009 (H1N1) and B/Brisbane/60/2008.

Antiviral Resistance

Since the beginning of the season, NML has tested 1,187 influenza viruses for resistance to oseltamivir (by phenotypic assay and/or sequencing) and 1,185 for zanamivir (by phenotypic assay) and it was found that all viruses tested were susceptible to oseltamivir and zanamivir. A total of 697 influenza A viruses (376 H3N2 and 321 H1N1) were tested for amantadine resistance; all but 1 influenza A(H3N2) virus tested were resistant. (Table 3)

Table 3. Antiviral resistance by influenza virus type and subtype, Canada, 2011-2012

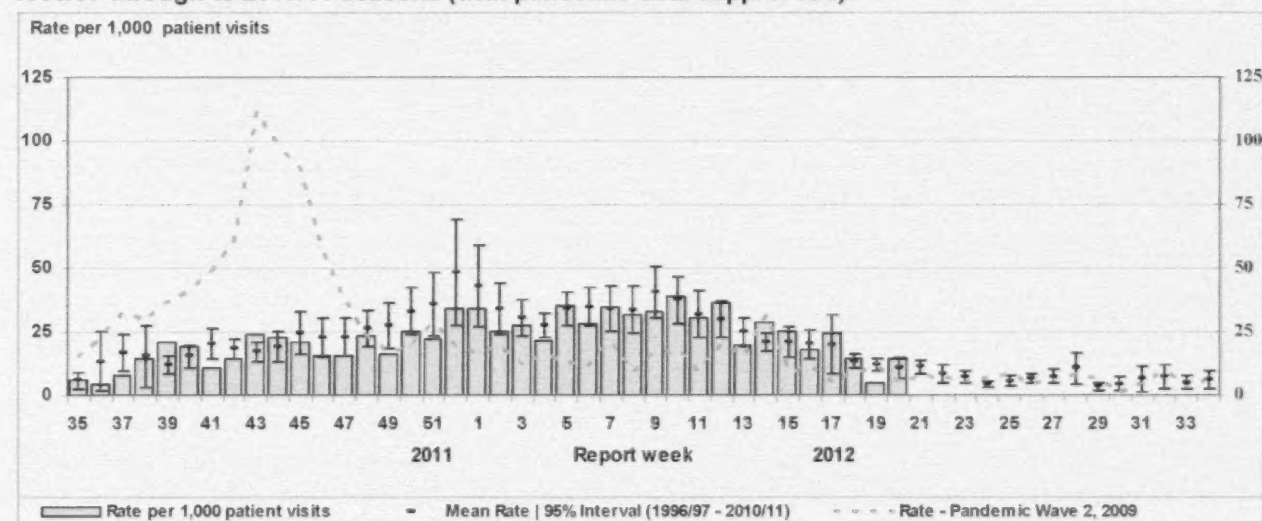
Virus type and subtype	Oseltamivir		Zanamivir		Amantadine	
	# tested	# resistant (%)	# tested	# resistant (%)	# tested	# resistant (%)
A (H3N2)	202	0	200	0	376	375 (99.7%)
A (H1N1)	223	0	223	0	321	321 (100%)
B	762	0	762	0	NA*	NA*
TOTAL	1187	0	1185	0	697	696 (99.9%)

* NA – not applicable

Influenza-like Illness (ILI) Consultation Rate

The national ILI consultation rate in week 20 (14.2 ILI consultations per 1,000 patient visits) increased compared to the previous week and is within the expected levels for this time of year (Figure 7). The highest consultation rates this week were observed in those between 5 to 19 years old (19.4/1,000 visits) and those between 20 to 64 years old (15.1/1,000 visits).

Figure 7. Influenza-like illness (ILI) consultation rates, Canada, by report week, 2011-2012 compared to 1996/97 through to 2010/11 seasons (with pandemic data suppressed)



Note: No data available for mean rate in previous years for weeks 19 to 39 (1996-1997 through 2002-2003 seasons). Delays in the reporting of data may cause data to change retrospectively.

Severe Respiratory Illness Surveillance

Paediatric Influenza Hospitalizations and Deaths (IMPACT)

In week 20, 11 new laboratory-confirmed influenza-associated paediatric (16 years of age and under) hospitalizations were reported through the Immunization Monitoring Program Active (IMPACT) network. Two hospitalizations were due to influenza A (unsubtyped) (in AB & QC) and 9 were due to influenza B (in AB, ON & QC).

To date this season, 571 influenza-associated paediatric hospitalizations have been reported through IMPACT (from BC, AB, SK, MB, ON, QC, NS & NL); 42.4% (242) were due to influenza A and 57.6% (329) were due to influenza B.

The proportion of cases by age group is as follows: 14.5% among infants <6 months of age; 20.1% among children 6-23 months of age; 30.3% were between 2-4 years; 24.7% were between 5-9 years; and 10.3% were between 10-16 years. To date this season, 5 influenza-associated paediatric deaths have been reported through the IMPACT network; all associated with influenza B infection.

Note: The number of hospitalizations reported through IMPACT represents a subset of all influenza-associated paediatric hospitalizations in Canada; therefore, the number of hospitalizations included in this report may differ from those reported by other Provincial and Territorial Health Authorities.

Influenza Hospitalizations and Deaths (Aggregate Surveillance System)

In week 20, 42 new laboratory-confirmed influenza-associated hospitalizations were reported of which 47.6% (20) were in those < 20 years of age and 52.4% (22) in those ≥ 20 years of age; 26.1% were due to influenza A and 73.8% due to influenza B. The hospitalizations were reported from AB (4), MB (2), and ON (36). Of the 42 hospitalizations, 1 required admission to ICU (MB) and was associated with an influenza B infection. In week 20, 2 influenza-associated deaths were reported (ON); all were associated with influenza B infection and were ≥ 65 years of age.

To date this season, 1,727 influenza-associated hospitalizations have been reported from 7 provinces (AB, SK, MB, ON, NS, PE & NL) and 2 territories (YT & NT); 39.1% (676) were in those < 20 years of age, 60.8% (1,050) in those ≥ 20 years of age, and 0.1% (1) of unknown age. The largest proportion of cases was observed in those ≥ 65 years of age (33.6%). Influenza B (56.6%) continues to be the predominant influenza type among hospitalized cases compared to influenza A (43.4%); of the influenza A hospitalizations where subtype was available, influenza A(H3N2) predominated (60.5%). There have been 72 hospitalizations requiring ICU admission reported (from AB, SK, MB, NS & NL) of which 29.2% were in those < 20 years of age and 70.8% were in those ≥ 20 years of age. To date this season, 90 influenza-associated deaths have been reported (from AB, SK, MB, ON & NS) of which 1.1% were of unknown age, 6.7% were among those < 20 years of age and 92.2% in those ≥ 20 years of age. Of the adult deaths, 80.7% were in those ≥ 65 years of age.

Note: Some of the hospitalizations and deaths reported in those ≤ 16 years of age may also have been reported in the IMPACT summary above if the hospitalization or death occurred in one of the 12 IMPACT hospitals. The reason for hospitalization or cause of death does not have to be attributable to influenza in order to be reported. Influenza-associated hospitalizations are not reported to PHAC by the following Provinces: BC, & QC. Only hospitalizations that require intensive medical care are reported by SK. ICU admissions are not reported in ON.

International Influenza Updates

WHO: No new updates have been reported by the WHO since May 11, 2012. [World Health Organization influenza update](#)

United States: During week 19, influenza activity declined nationally and in most regions of the United States, however remained elevated in some areas. In week 19, the proportion of tests positive for influenza viruses declined compared to the previous week (13.3%); the majority (52.8%) were positive for influenza A viruses, however the proportion positive for influenza B virus detections increased. Since October 1, 2011, the CDC characterized 1,514 influenza viruses: 369 A/H1N1, 893 A/H3N2 and 252 B. Of the 369 A/H1N1 viruses characterized, 98.4% (363) were A/California/7/2009(H1N1)-like and 1.6% (6) showed reduced titers with antiserum produced against A/California/7/2009. Of the 893 influenza A/H3N2 viruses that were characterized, 81.0% (723) were A/Perth/16/2009-like and 19.0% (170) showed reduced titers with antiserum produced against A/Perth/16/2009. Of the 252 influenza B viruses that were characterized, 46.4% (117) were B/Brisbane/60/2008-like (B/Victoria lineage) and 53.6% (135) belonged to the B/Yamagata lineage. The proportion of outpatient visits for ILI was 1.2%, which is below the national baseline. Widespread influenza activity was reported in 1 state, 5 states reported regional influenza activity, 11 states reported localized influenza activity, while the rest reported either sporadic or no activity. Two influenza A-associated paediatric deaths were reported to CDC in week 19 but occurred in week 17. To date this season, 24 influenza associated-pediatric deaths have been reported. [Centers for Disease Control and Prevention seasonal influenza report](#)

Europe: In week 20, clinical consultation rates for influenza-like illness (ILI) and acute respiratory infection (ARI) were at low levels in all countries and regions. The numbers of specimens tested slightly increased although the percentage of positive influenza cases continued to decline; the positive cases for week 20 showed a higher prevalence of influenza B viruses (70%) compared to influenza A (30%). Since week 40, 2,001 influenza viruses have been characterized antigenically: 1.5% were A/California/7/2009(H1N1)-like; 75.6% were A/Perth/16/2009(H1N1)-like; 0.1% were A/Brisbane/10/2007 (H3N2)-like; 2.4% were B/Florida/4/2006-like (B/Yamagata/16/88 lineage), 2.7% were B/Bangladesh/3333/2007-like (B/Yamagata/16/88 lineage) and 17.6% were B/Brisbane/60/2008-like (B/Victoria/2/87 lineage). [EuroFlu weekly electronic bulletin](#)

Human Avian Influenza Updates

No new human avian influenza A/H5N1 cases were reported by the WHO since May 2, 2012. [*WHO Avian influenza situation updates*](#)

FluWatch reports include data and information from the following sources: laboratory reports of positive influenza tests in Canada (National Microbiology Laboratory), sentinel physician reporting of influenza-like illness (ILI), provincial/territorial assessment of influenza activity based on various indicators, including laboratory surveillance, ILI reporting, and outbreaks, influenza-associated paediatric and adult hospitalizations, antiviral sales in Canada, and WHO and other international reports of influenza activity.

Abbreviations: Newfoundland/Labrador (NL), Prince Edward Island (PE), New Brunswick (NB), Nova Scotia (NS), Quebec (QC), Ontario (ON), Manitoba (MB), Saskatchewan (SK), Alberta (AB), British Columbia (BC), Yukon (YT), Northwest Territories (NT), Nunavut (NU).

ILI definition for the 2011-2012 season

ILI in the general population: Acute onset of respiratory illness with fever and cough and with one or more of the following - sore throat, arthralgia, myalgia, or prostration which is likely due to influenza. In children under 5, gastrointestinal symptoms may also be present. In patients under 5 or 65 and older, fever may not be prominent.

Definitions of ILI/Influenza outbreaks for the 2011-2012 season

Schools: Greater than 10% absenteeism (or absenteeism that is higher (e.g. >5-10%) than expected level as determined by school or public health authority) which is likely due to ILI. Note: it is recommended that ILI school outbreaks be laboratory confirmed at the beginning of influenza season as it may be the first indication of community transmission in an area.

Hospitals and residential institutions: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case. Institutional outbreaks should be reported within 24 hours of identification. Residential institutions include but not limited to long-term care facilities (LTCF) and prisons.

Other settings: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case; i.e. workplace, closed communities.

Influenza Activity Levels Definition for the 2011-2012 season

Influenza Regional Activity levels are defined as:

- 1 = No activity: no laboratory-confirmed influenza detections in the reporting week, however, sporadically occurring ILI may be reported
- 2 = Sporadic: sporadically occurring ILI and lab confirmed influenza detection(s) with **no outbreaks** detected within the influenza surveillance region†
- 3 = Localized: (1) evidence of increased ILI* and
(2) lab confirmed influenza detection(s) together with
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring in **less than 50% of the influenza surveillance region†**
- 4 = Widespread: (1) evidence of increased ILI* and
(2) lab confirmed influenza detection(s) together with
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring in **greater than or equal to 50% of the influenza surveillance region†**

Note: ILI data may be reported through sentinel physicians, emergency room visits or health line telephone calls.

* More than just sporadic as determined by the provincial/territorial epidemiologist.

† Influenza surveillance regions within the province or territory as defined by the provincial/territorial epidemiologist.

We would like to thank all the Fluwatch surveillance partners who are participating in this year's influenza surveillance program.

This report is available on the Public Health Agency website at the following address: <http://www.phac-aspc.gc.ca/fluwatch/index.html>. Ce rapport est disponible dans les deux langues officielles. Pour en recevoir un exemplaire dans l'autre langue chaque semaine, veuillez communiquer avec Estelle Arseneault, Division de l'immunisation et des infections respiratoires au (613) 998-8862.